

ZOOGOER





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David K. Krohne

Editorial and Art Director

Mary C. Massey

Consulting Editor

Scott Bushnell

Graphics Assistant

Contributors

Facing the Challenge of Feeding Time at the Zoo.

A former Smithsonian intern, Leila R. Mathur now writes for the National Institutes of Health.

Secrets of Animal Language Revealed.

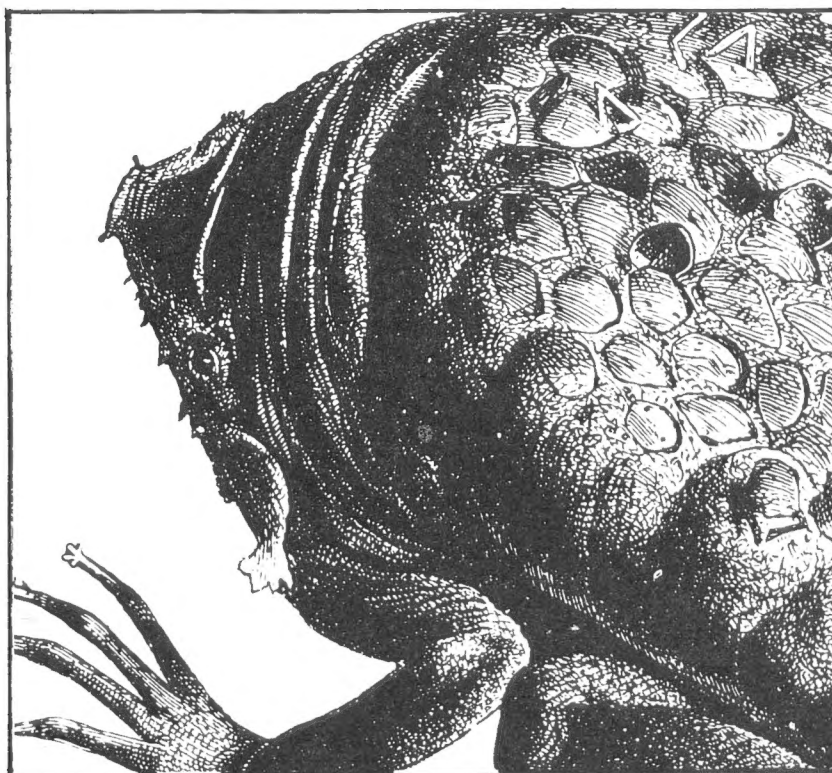
Madeleine Jacobs is a science writer with Smithsonian News Service.

The Saga of the Surinam Toads.

Billie Hamlet, former Chief of the Public Affairs Office, is now researching and writing the definitive history of the National Zoo.

Front Cover:

The striking Colobus monkey is only one of 2400 wild creatures whose dietary requirements pose special and daily challenges for Dr. Olav Oftedal, one of only two professional animal nutritionists in the American zoo world. (Photograph by Jessie Cohen, NZP Office of Graphics and Exhibits.)



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Brandy Clymire

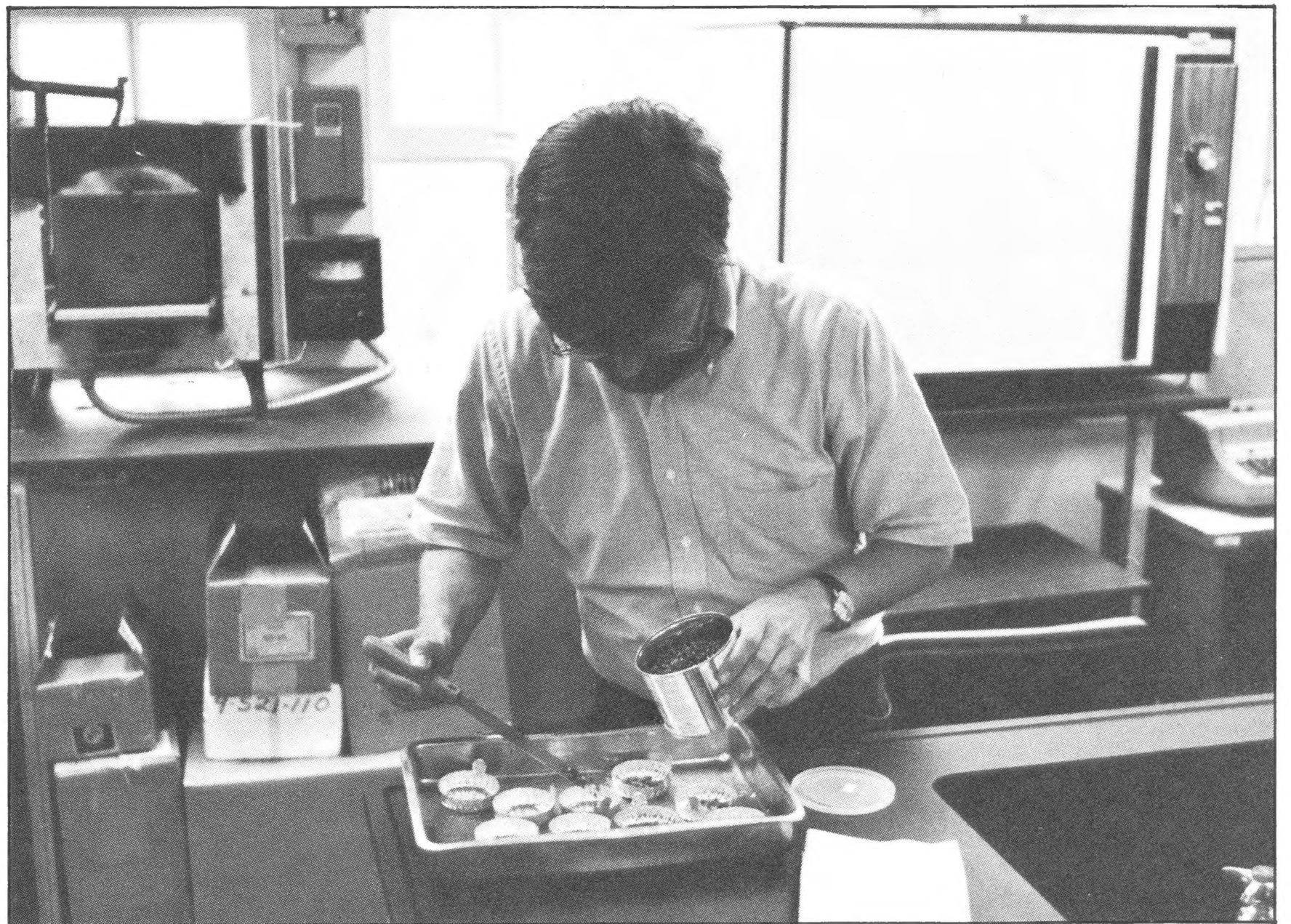
Facing the Challenge of Feeding Time at the Zoo

Leila R. Mathur

Satisfying a pet dog or cat with a can of food is so easy that most pet owners never think twice about feeding time. But Dr. Olav Oftedal faces the challenge of feeding time every day for the National Zoo's 2400 animals. Because commercially prepared foods are not suitable for a wide range of exotic animals, Oftedal, the Zoo's animal nutritionist, must determine whether the tasty crickets eaten by the Madagascar day gecko lizards will cause bone problems or whether the worms munched on by the New Zealand kiwis contain enough vitamin A.

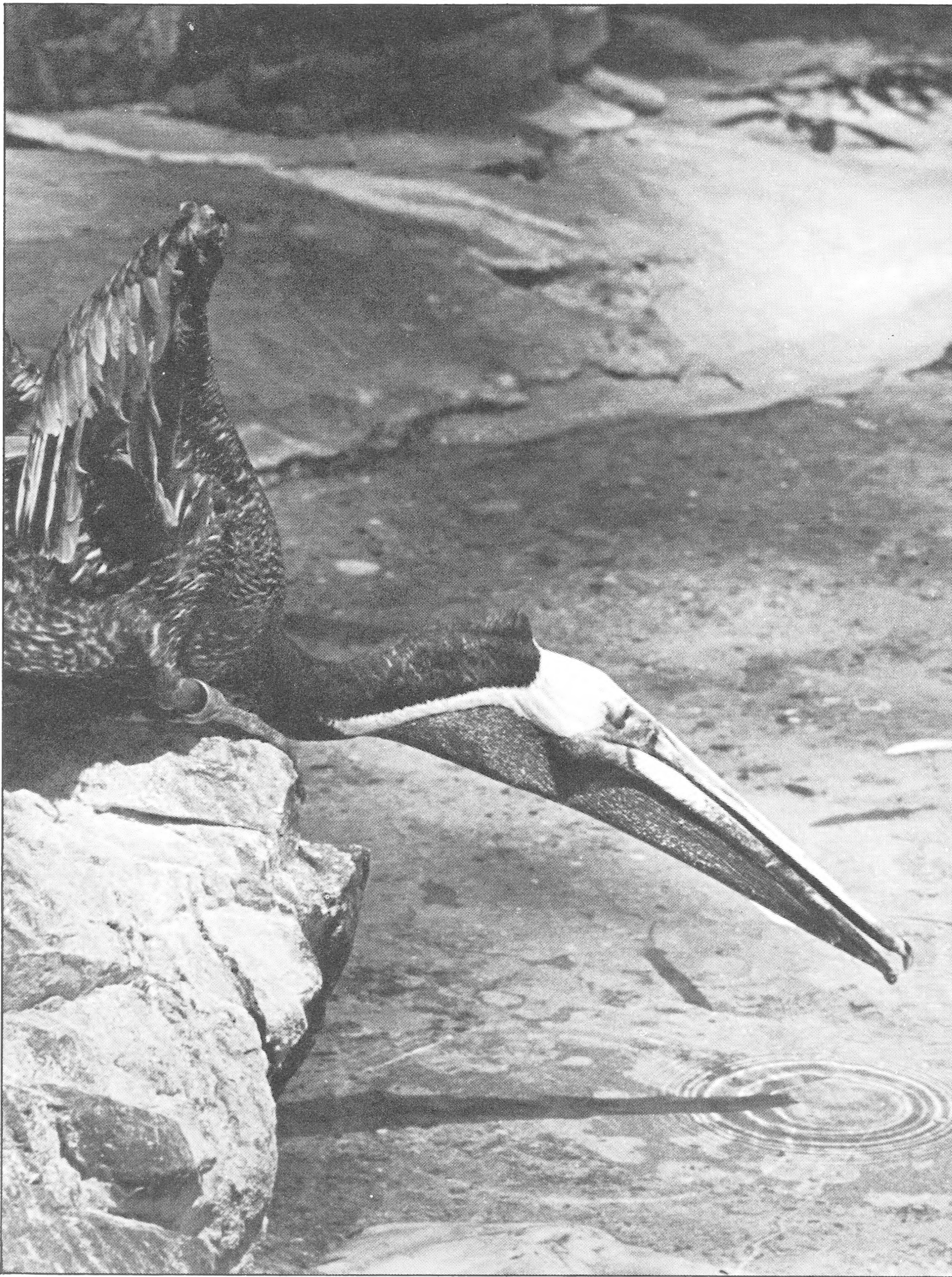
Like human nutrition, animal nutrition is drawing increased attention. At stake are the well-being and health of the animals. Some are endangered species, and many of them are rare. For such animals, zoos may provide the last chance for survival.

David K. Krohne



Analyzing the nutritional value of Zoo food—from crickets to kale—is an important part of nutritionist Dr. Olav Oftedal's work.

Opposite: *Oftedal discusses the diet of the rare ruffed lemurs with Monkey House keeper Bruce Kirtley-Hodess.*



Oftedal's study of Zoo diets includes preventing vitamin deficiencies in endangered species such as the brown pelican.

Money is a factor, too. "The expense of purchasing and transporting animals has made zoos realize that improving animal nutrition can save them a lot of money," Oftedal says. "If a baby bongo antelope—a rare species—died because of malnutrition, it would cost about \$30,000 to buy a replacement from another zoo."

The consequences of neglecting dietary requirements are sometimes dramatic. Four years ago, five of six newly arrived brown pelicans died suddenly of a vitamin E deficiency. To prevent such disaster, Oftedal has been studying and revising the diets of the animals at the Zoo for three years.

A major problem facing the animals is that of adjusting to a new home. "Animals that have been relocated from another zoo or from their natural habitat sometimes won't eat readily," he notes, "so we may have to feed them *anything* just to get them to eat. After that, we worry about a nutritionally balanced diet."

Even when a diet seems to be working, it may not provide everything that is needed. Take the case of the black and white Colobus monkeys from Africa. These striking long-haired monkeys with expressive eyes eat high-fiber leaves in the wild and have adapted to this by developing large forestomachs where

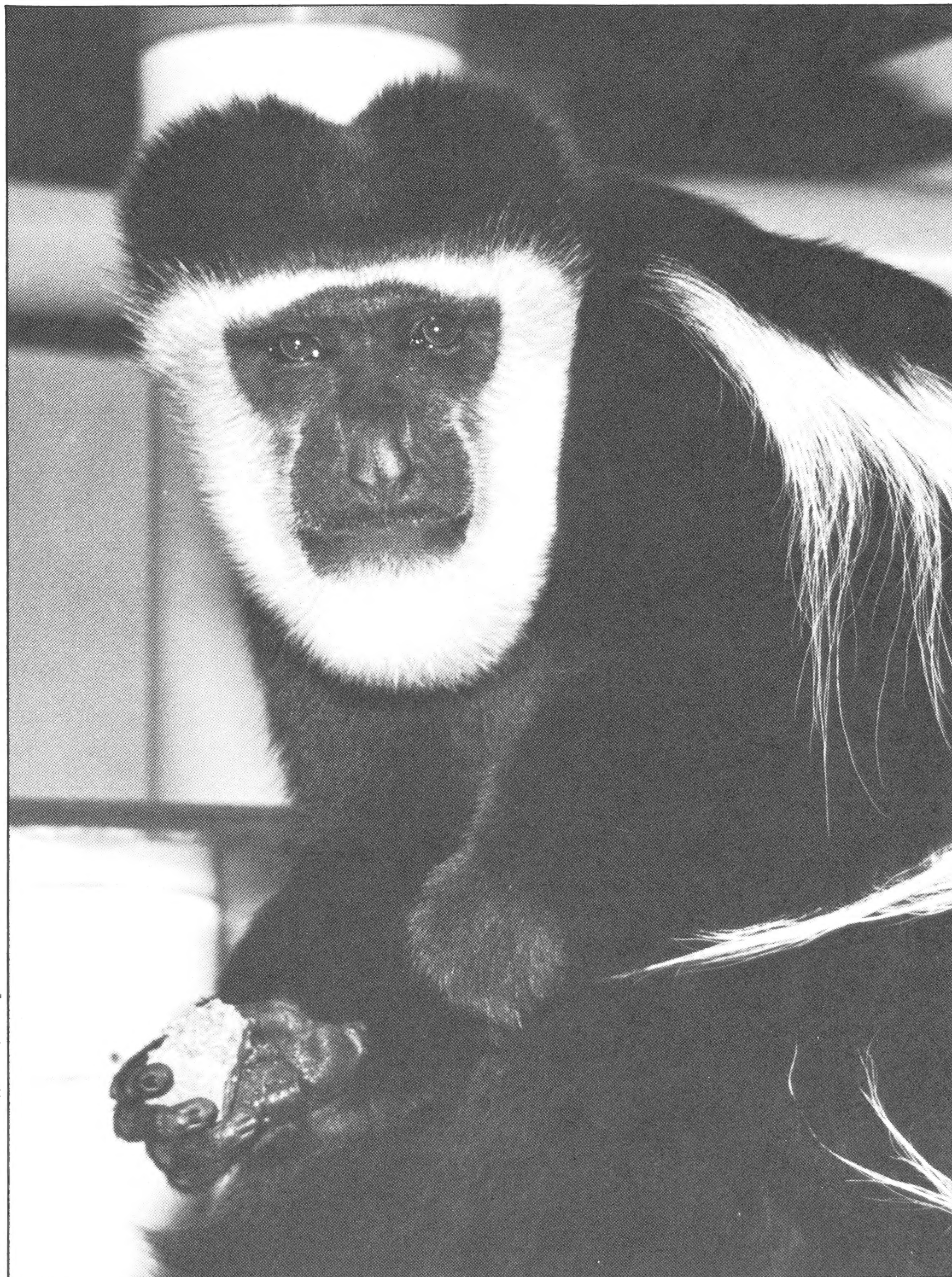
they ferment the leaves. They derive energy from the fermentation.

The monkeys survive on the kale and other vegetables they are fed at the Zoo, but the diet probably does not contain all the fiber they need. Commercially prepared biscuits also do not provide enough fiber. The result can be severe gastrointestinal disturbances. To resolve the problem and simplify feeding, Oftedal hopes to develop a high-fiber biscuit for the monkeys that, he says, "may have an impact on many zoos in this country."

Oftedal will probably use a commercial fiber source, such as wheat bran or alfalfa, rather than the gas-producing fiber from cabbage and kale. "We'll test different products to see which the animals prefer and to see which products are most digestible," he says. By analyzing the feces of the animals for fiber content, he will be able to determine how much fiber is being digested in the body. These results will be compared with data already obtained on the current low-fiber diet.

"Many times it is difficult to tell if the animals are getting the correct nutritional balances," Oftedal says, "because, like humans, individual animals have different needs. But unlike humans, animals can't tell you directly how they feel. And a

Jessie Cohen, NZP Office of Graphics and Exhibits



Colobus monkeys require a high-fiber diet, so testing different fiber sources is crucial to determine which the animals prefer and which are most digestible.



The Kjeldahl unit enables the Zoo nutritionist to determine the protein content of various foods for the animals.

marginal vitamin deficiency might escape detection initially."

Nervous disorders, loss of hair, and eye problems are among the symptoms of nutritional deficiencies. The number and health of a Zoo denizen's offspring and the health of the animal itself are indicators of the adequacy of a diet.

Still, it is often a process of trial and error for the Zoo's curators and keepers. Before Oftedal came to the Zoo, the female Madagascar day gecko lizards developed rubbery bones. The Zoo pathologist diagnosed a calcium deficiency. The calcium needed by the small (about five inches long) bright green lizards for their own bodies was being used up to produce eggs.

The geckos were fed a mixture of calcium and honey as a cure, but apparently the mixture was not properly balanced since some lizards wound up with calcified internal organs. Efforts are under way to manipulate the calcium and vitamin content of the insects used in feeding, and the ultraviolet strength of the lights under which the lizards are kept has been increased.

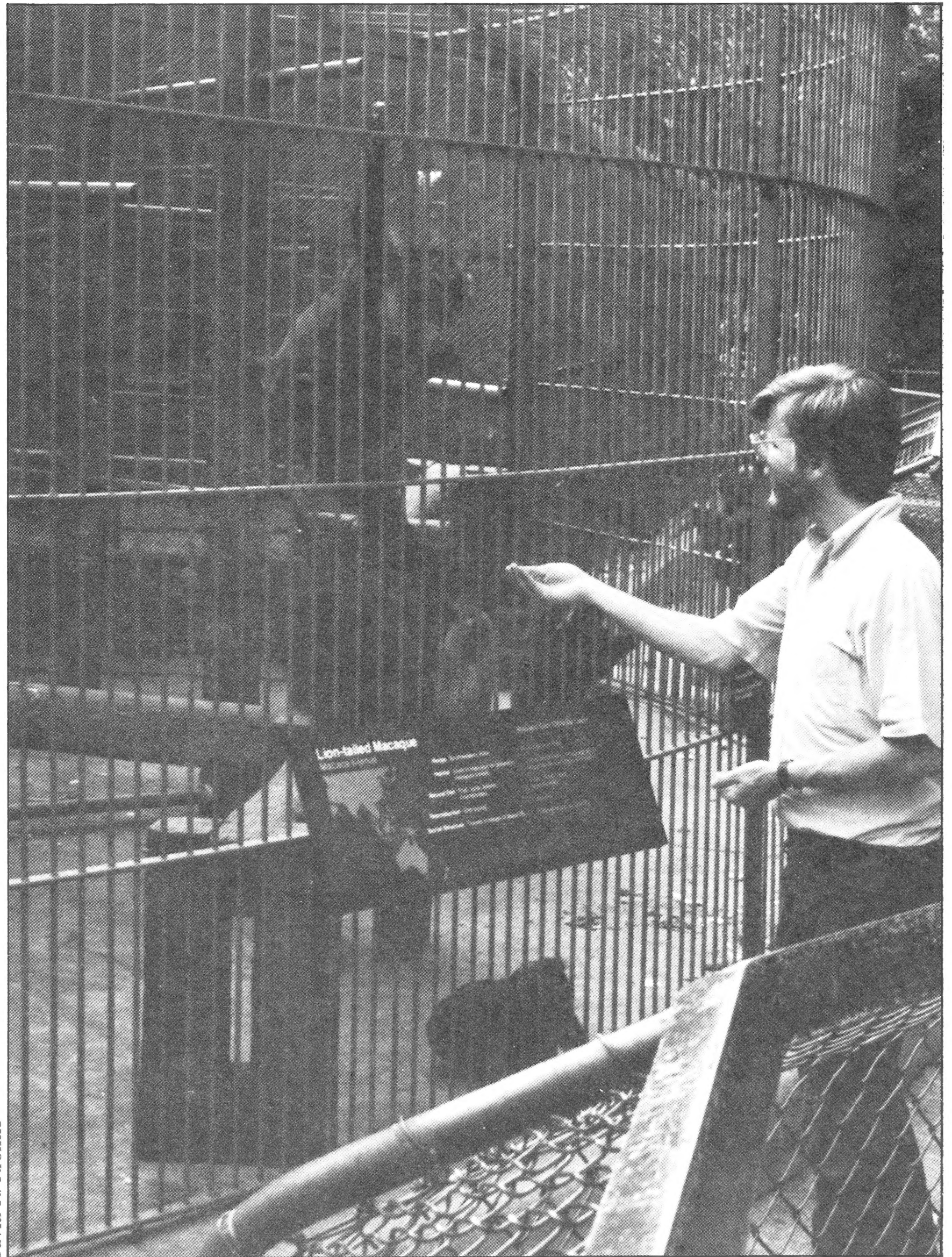
One of Oftedal's current challenges is to review the diets for the Zoo's 190 species of birds. Various experimental food pellets are being tested,

and some food items are being analyzed for vitamin and mineral content. After comparing the different foods, the most suitable type of worm, insect, or pellet for the bird's diet will be chosen.

The tons of food needed for the Zoo's animals is expensive, costing more than a quarter of a million dollars a year. In a single year, the animals eat about 110,000 pounds of fish, 150 tons of hay, 47,000 pounds of meat, 170,000 rats and mice, over a million crickets, and 53,000 eggs—plus tons of bananas, apples, oranges, and grain.

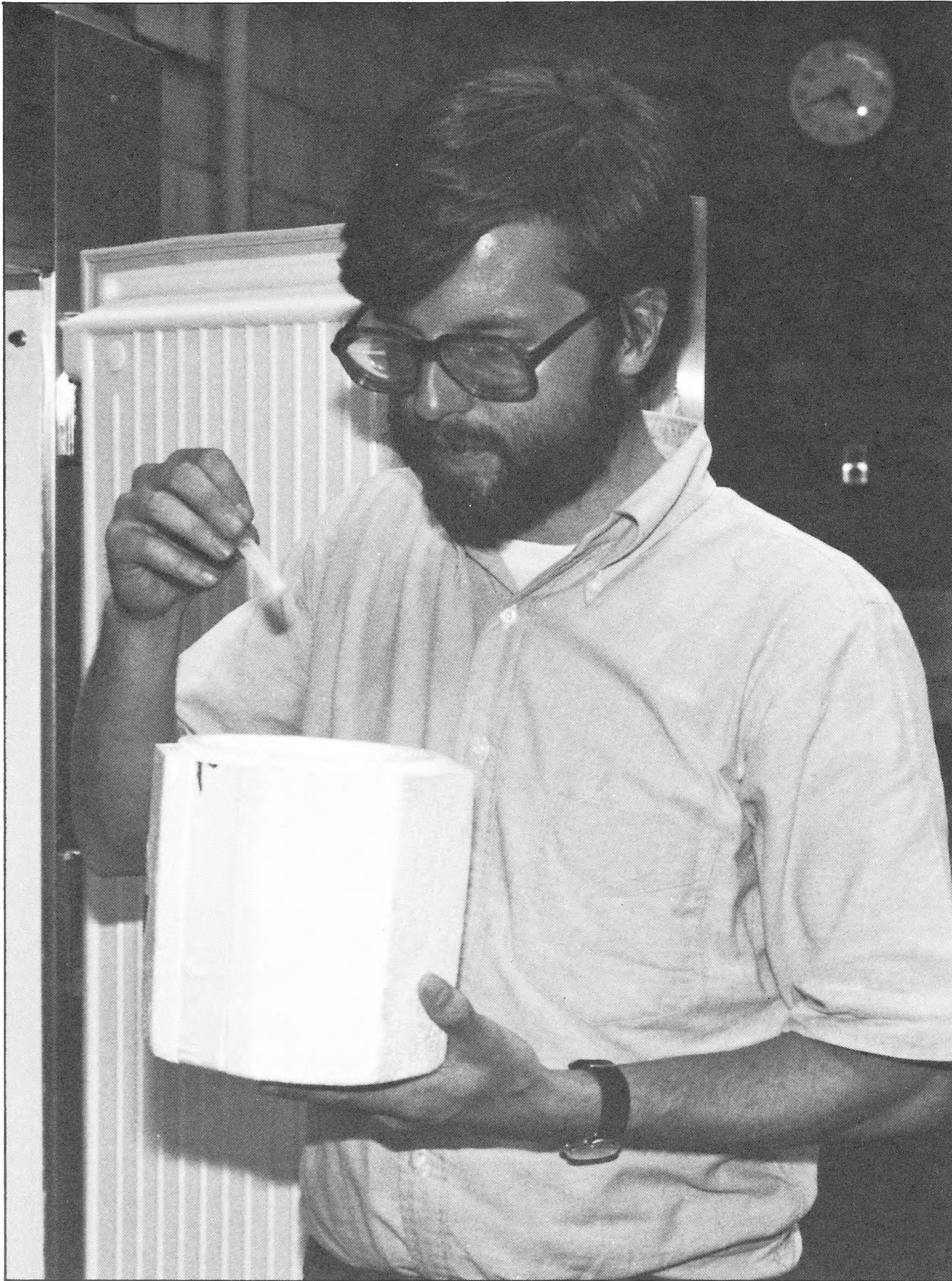
Sometimes the Zoo gets lucky and saves a hefty expense. Two years ago, the Zoo received 88,000 pounds of frozen meat free. It had been stolen from Army bases and recovered and held in freezers for three years while court proceedings went on. The meat was damaged by freezer burn and was not fit for human consumption, but it was suitable for animals once proper supplements were added.

Oftedal was the first highly trained, full-time animal nutritionist employed by a zoo in this country. (More recently, the Brookfield Zoo in Chicago has also hired an animal nutritionist.) He finds his job exciting, but adds, "It's quite difficult because very little work has been done before me. I'm still scratching



David K. Krohne

Lion-tailed macaques clamor for a treat of sunflower seeds, enabling Oftedal to check their condition.



Samples of animal foods, feces, and milks are stored in a freezer prior to analysis. Here Oftedal examines a vial of milk from a large fruit bat.

the surface of what can be accomplished."

The Zoo built a special nutrition laboratory where Oftedal engages in research analyzing foods, feces, and the milk of various animals. He spends about half his time doing research and the remainder dealing with the practical problems of Zoo animal feeding. The role of milk in the nutrition of young animals is an area of particular research interest for him.

Oftedal was originally educated as a human nutritionist. His graduate studies at the Massachusetts Institute of Technology took him to Pakistan to plan human nutrition programs there. But he found that "dealing with human nutrition is dealing with politics," and he switched to a Ph.D. program in animal nutrition at Cornell University.

"Since I've always been interested in exotic animals," he says, "I'm now doing professionally what I once did as a hobby."

Secrets of Animal Language Revealed

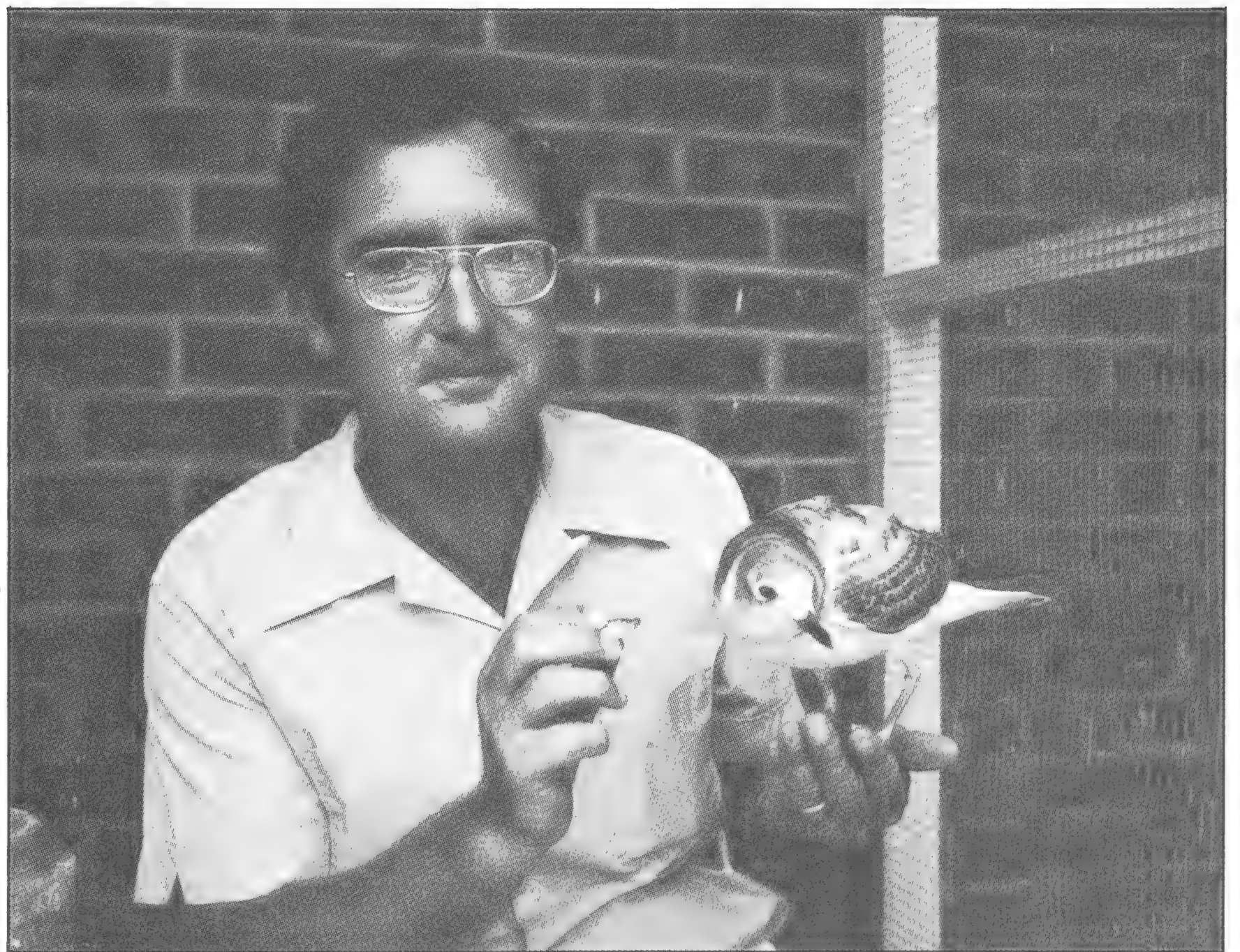
Madeleine Jacobs

An aggressive woodpecker and an angry African elephant might not appear to have much in common, but according to Dr. Eugene S. Morton, research zoologist and acting head of the ornithology department at the Zoo, the two are literally “birds of a feather.”

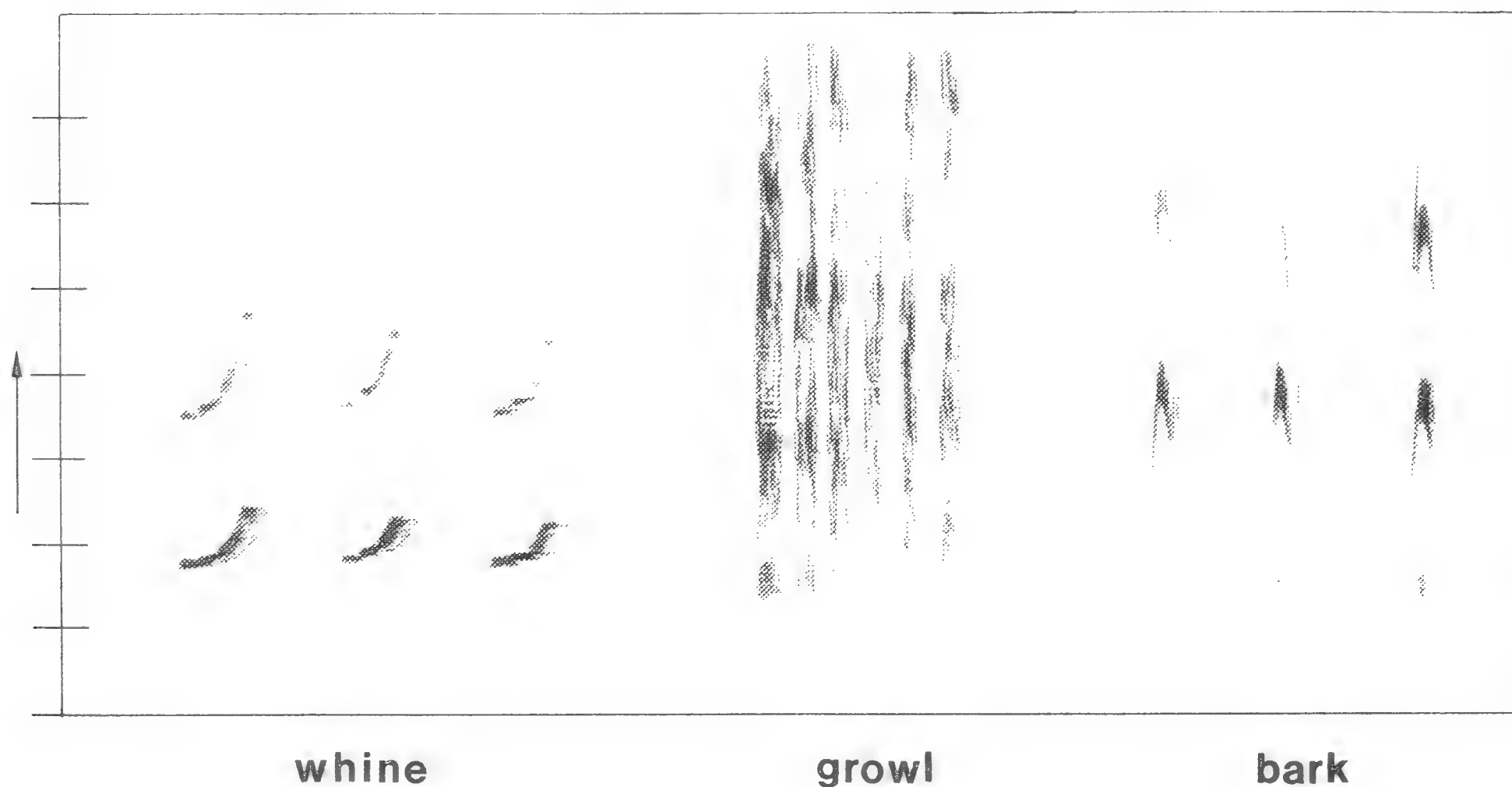
What the woodpecker, the elephant, and a whole menagerie of birds and mammals—including humans—share is a similar approach to communication, Morton says. After more than a decade studying sounds used by animals to “talk” to each other, Morton has developed a theory with enormous potential for understanding the evolution and meaning of all animal language.

Simply stated, the theory proposes that there are three major elements

Jessie Cohen, NZP Office of Graphics and Exhibits



Dr. Eugene Morton is an expert on animal communication but he insists that, unlike Dr. Doolittle, he does not talk to the animals!



This sonagram illustrates the whine, growl, and bark of Carolina wrens.

found in all animal language: a low, harsh sound, or “growl,” used in hostile or aggressive situations; a higher, tonelike sound, or “whine,” used in appeasing or friendly situations, and a sound that falls somewhere in between, a so-called “bark,” which is used to indicate indecision or to attract attention.

With these three elements and their variations, Morton says, animals can express a wide range of feelings or motivations. Most important, the actual physical or acoustical structure of the sounds directly reflects the animal’s intention. Morton’s

theory explaining why this system evolved is compatible with Darwin’s theory of natural selection—that, because of more efficient reproduction, well-adapted or “fit” individuals thrive and poorly adapted individuals die out.

It may seem strange to think of birds barking and growling and elephants whining, Morton admits. But if you ever stood in a cornfield and listened to a crow attacking a rival, you would recognize the crow’s sound as a definite growl.

“The Carolina wren barks, growls, and whines,” says Morton, an ornithologist by training who has studied the species in detail, “depending on whether or not it sees something alarming, is attacking a rival, or is approaching its mate.”

The African elephant makes a deep, roaring, rumbling sound when it is charging and a high-frequency sound when it is being “friendly.” The pet dog often growls when another dog invades its territory, but it may well whine or whimper if it is trying to make friends or back off from a fight. In short, from the

rhinoceros to the chickadee, a wide variety of birds and mammals share these vocal elements.

Morton originally came to this conclusion after studying the sounds that birds use in a variety of situations. He expanded his studies to mammals and found the same patterns, which have been confirmed by analyzing animal sounds with a sonagraph.

A sonagraph is an instrument that converts sounds into a two-dimensional picture, or sonagram, showing frequency or pitch changes with time. When sonagrams of growls, barks, and whines are examined, certain common pictorial features are obvious. The growl, whether from a pelican or a pig, shows up as a thick, black band at low frequency; the whine becomes a thin line at higher frequency; and the bark or grunt is chevron-shaped.

"The physical structure of sounds is not arbitrary," Morton says, "but has evolved in such a way as to signal motivation in circumstances that increase the reproductive success or fitness of the sender."

He explains how this theory works in practice. A person observing a male and female bird chattering away at each other might imagine that the male is telling the female about a glorious worm he has



Jessie Cohen, NZP Office of Graphics and Exhibits

Morton uses the sonagraph to convert animal sounds into two-dimensional pictures, or sonagrams, that show frequency or pitch changes.

caught and where to find one like it, or that the male is trying to tell the female how pretty she is. Actually, the birds are doing neither of these things, Morton maintains, because animals do not "talk" to each other in the sense that people do.

Instead, one of several things may really be happening. If the female is making high-pitched "cooing" sounds, for instance, she is probably signalling a friendly motivation and perhaps her willingness to mate. Mating is not only essential for survival of the female's genes through her offspring, but in some

species it may be essential to survival of the individual bird itself. Female Carolina wrens, for example, are unable to hold a territory alone; they are rapidly driven away by adjacent pairs of wrens.

"The best words to describe what is happening when animals 'talk' to each other are 'vocal expression,' the same term used by Darwin more than 100 years ago," Morton says.

Darwin's theory provides a framework for explaining how vocal expression evolved. The earliest land animals probably had no means of

vocal communication. In fact, primitive amphibians such as salamanders still do not make sounds. Animals lacking a means of vocal expression must literally fight off every intruder since they do not have a voice to signal their intention.

Because larger animals will usually win in a fight with smaller animals, this system promotes survival of larger and larger animals. The dinosaurs may have evolved in part because of this selection factor. But then comes the Catch-22. Big animals also need a lot of food to survive; this means they have to spend more and more time fighting for food resources, and as Morton says, this makes the species prone to extinction.

Nature's way of balancing larger body size versus limited food resources was pragmatic—the evolution of vocal expression to signal intent. The frequency of a sound depends on the tension, length, and thickness of the vibrating membrane in an animal's voice box. Larger animals, because they have larger membranes, are capable of making lower-frequency sounds. Over the eons, the use of low-frequency sounds came to signal the size and aggressive intent of the sender to the recipient.

As voices evolved, animals no

longer needed to grow to enormous size to indicate their strength and fitness; they could use their voice to send a message. Small animals, like the chickadee and the mouse, could make low, harsh sounds that made them seem larger. The low-frequency sound also signalled an aggressive motivation; perhaps the recipient, understanding the intent of the message, might back off from the fight.

On the other hand, high-pitched, tonelike sounds indicate a small size. Even if the animal is not really small, that sound gives the right signal to the recipient. An animal making a high-frequency "whine" indicates that it wants to appear "small" or meek.

In practice, the whine also helps increase fitness. It could prevent an animal from being attacked and possibly killed or injured in a situation where another animal is being aggressive. The whine helps baby birds in a nest competing for food with siblings by giving an appeasing and, therefore, attracting message to the parents. Human infants act much the same way.

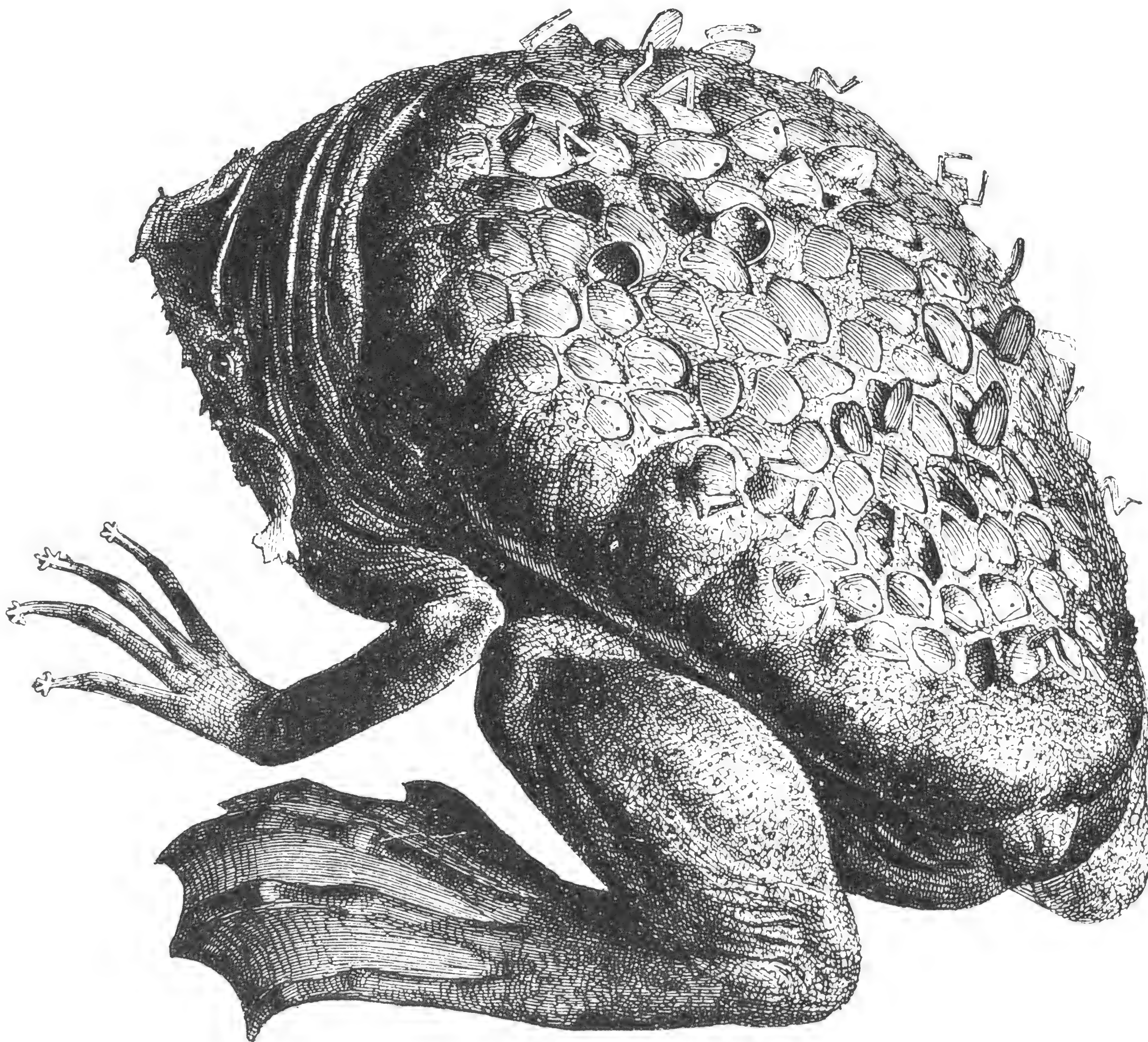
People also share this evolutionary legacy of communication; it is found in the intonation of speech patterns. In virtually every human culture studied, Morton says, high, rising, tonelike sounds are used to

indicate friendliness; rising and falling tones are used to ask a question or attract attention; and low-frequency "growls" are common in aggressive or hostile encounters. Of course, in addition to this structure of sounds, humans also have words to help them define their motivation or feelings.

"It is a relatively simple system, it is universal, and it seems to work," says Morton, who is continuing to gain evidence for his theory through detailed studies of Carolina wren sounds. And just to test it out, the next time your dog growls at you, try growling back!

The three major elements of animal language—the growl, whine, and bark—look the same on a sonagram whether coming from a pelican or a pig.





The Saga of the Surinam Toads

Billie Hamlet

This is another chapter in the colorful history of the National Zoo being written by Billie Hamlet. By the way, we are still waiting to hear from someone who can tell us about John P. Hermann, "the man of a thousand songs."

In 1931, Congress appropriated a \$2000 travel fund for the National Zoo. The legislators had been impressed by the fact that the previous year, Zoo Director Dr. William M. Mann had spent his own money and vacation time collecting animals for the Zoo in Cuba and Central America. It was the first time Congress had financed a collecting trip for the Zoo.

So Dr. Mann scooped up the money and his good wife Lucy and set off for two months—July and August—in the wilds of British Guiana (now Guyana). As usual, he had pre-

pared a list of animals indigenous to the area and hoped to bring back such rare specimens as the manatee, bush dog, giant armadillo, saki monkey, a family of howler monkeys (fully believing that a family did better in captivity than singles or a pair), a harpy eagle, umbrella bird, cock-of-the-rock, bell bird, giant toad, dendrobates (arrow poison frog), and—above all—some Surinam toads.

His heart was really set on getting a batch of Surinam toads. The life-style of these curious creatures intrigued him. The female has many small depressions in the skin of her back in which the male deposits eggs that stay there until metamorphosis is completed.

After three weeks in the field, the Manns were disappointed with their scant collection. All they had

to show for their own efforts were one whippoorwill, four snakes, three turtles, and twelve frogs. So they decided to boat up and down the rivers sending out word that they would pay money for live animals. By the time they were ready to board the steamer for the trip home, they had 75 crates containing 20 mammals, 116 birds, 84 lizards, 54 snakes, 21 turtles, 32 South American toads, and one frog!

There were no harpy eagles, no bush dogs, and—worse still—no Surinam toads. In spite of canals having been drained and the ooze carefully examined, not a single Surinam toad had been added to the collection.

In Paramaribo they met a man named A. J. Jessurun who had promised to collect some toads, but during the time the Manns were in

the area, he had been unable to find any because of high water. He said he would keep looking, and when he found some, he would send them to Dr. Mann.

The following winter Dr. Mann received a cable from Jessurun saying that two boxes containing Surinam toads would arrive in New York on January 4. The Manns grabbed the first fast train to New York so they would be there when the ship docked.

All the way to New York Dr. Mann agonized that they were probably getting just a bunch of common South American toads. He groaned to Lucy that he doubted Jessurun knew a Surinam toad when he saw one and was most likely sending something else. He was so pessimistic that he threatened to throw them overboard if they turned out to be just plain toads.

As the train sped on its way, he questioned why they were in boxes, because they should have been shipped in pails. He mused that if they were Surinam toads, they would all be dead. His musing was punctuated with the threat that if the 100 Surinam toads had all dried out, he would throw the captain overboard!

To add to the general air of pessimism and anxiety, the steamer

was twelve hours late docking. This gave Dr. Mann even more time to groan and question the cargo that was being sent to him.

At last the steamer docked, and the Manns raced aboard, hardly able to contain themselves. The captain was on deck to greet them and escorted them to the hold. When the large wooden boxes were opened, there they lay: 94 living Surinam toads that looked like rough, brown overlapping shingles. Ellis Joseph, a friend who had accompanied the Manns, scrounged up a couple of five-gallon milk cans as a repository for some of the toads. The remainder had to be content with a box. The containers were carefully wrapped in blankets to protect the toads from the winter cold.

For the return trip to Washington, the Manns booked a compartment on a Pullman train; they didn't want to entrust their precious cargo to the baggage car.

Surinam toads have two distinct calls, one of which is a long, drawn-out *p-e-e-pa*, and the other a penetrating, metallic *clackety-clack*. The compartment was filled with the sound of the vocalizing toads. Dr. Mann sat up all night, tapping first one can and then the other in a fruitless effort to keep the toads quiet, expecting at any minute to get complaints from other passen-

gers who were trying to get a good night's sleep.

Although the Manns had been told they could sleep on the train until 8:00 a.m., at 5 o'clock Dr. Mann was tapping Lucy on the shoulder and telling her to get up and get dressed. She glanced at her watch and wailed, "But Bill, it's only 5 o'clock!" "I know," he replied, "but I want to get off this train before we get thrown off!"

At the time, there were only about four specimens of this rare toad in American zoos, so to have 94 all at once was something of a zoological coup. The little uglies, which had cost 40 cents apiece, were deposited in various aquariums in the Reptile House. Later some were distributed to zoos that had reptile houses, and others were sent to students of the batrachians.

Thus ends the true story of how the National Zoo got its first Surinam toads.

ZOO NEWS

Diamonds in the Ruff

Leaning on its haunches, stretching its legs, and facing the sky, the ruffed lemur basks in the morning sun. Because of this behavior, natives of Madagascar (now the Malagasy Republic) believed it to be a sun worshipper and, therefore, a holy and protected animal. For hundreds of years the ruffed lemur was relatively safe in Madagascar's eastern coastal rain forests until civilization destroyed the old beliefs and agriculture destroyed the forests. Today there are very few, if any, ruffed lemurs remaining in the wild.

The ruffed lemur is a primate, one of the group called prosimians. Prosimians, or "pre-monkeys," most nearly resemble the primitive ancestors of all primates and form the largest of the four groups of primates. The ruffed lemur is the only prosimian currently on exhibit at the National Zoo. Unlike other primates—monkeys, apes, and humans—which rely on sight, the prosimians are distinguished by a well-developed sense of smell. The olfactory lobe in the brain is large, and in most species the snout is long; these adaptations increase the power of the sense of smell.

Jessie Cohen, NZP Office of Graphics and Exhibits



The birth of four ruffed lemurs in May was a major event since the likelihood of these endangered prosimians producing quadruplets is less than one chance in 33.

However, like other primates, prosimians have grasping hands and feet that make them well-suited for living in trees. The ruffed lemur lives in the forest canopy from 50 to 200 feet above the ground. It ranges widely over the forest following its preferred food—the ripening fruit. The vivid pattern of its black and white fur blends into the lights and shadows cast by the leaves.

Ruffed lemurs travel in family groups of two to five animals. In captivity, the female comes into heat one day each year, and the young—usually twins—are born

102 days later in a nest box the mother has lined with straw. As they mature, the males are allowed to remain with the family, but the females are driven out when they are about eighteen months old.

Last spring, five-year-old Luke and nine-year-old Leia, on loan from the San Diego Zoo, produced twins Lerna and Levy, the first ruffed lemurs born at the National Zoo. This year, however, they really outdid themselves: *four* babies were born on May 12. Twinning is common for these endangered primates,

but the chance of quadruplets being born is less than three percent.

Initially, Leia kept the babies hidden in a nest box where she nursed and cuddled them and kept other family members away. Unlike most primates, an infant ruffed lemur does not cling to its mother; instead, it is carried around in the mother's mouth. The quadruplets are now on exhibit with their family at the Monkey House.

Ruffed lemurs are rarely seen outside the Malagasy Republic because of strict export regulations. Be sure to see this rare family when you visit the Zoo!

Art at the Zoo

Kouprey Sculpture Dedicated

A bronze sculpture of the kouprey, a wild member of the cattle family that is either extinct or very near extinction in its native Cambodia, was dedicated on May 11. The sculpture is mounted at the entrance to the Education Building and honors Dr. Harold J. Coolidge's efforts in the conservation and preservation of wildlife in general and the kouprey in particular.

California Condor Sculpture Exhibit

The Zoo has opened an exhibit of California condor sculptures by Erwin Hauer. The three life-size

figures with nine-foot wing spans will be on display in the lobby of the Education Building through August 28.

The California condor is the largest bird found in North America and is also one of the most critically endangered. There are probably no more than 60 California condors still alive. The population has been decreasing steadily, and ornithologists predict that the species will become extinct by 1995. The birds are presently restricted to a mountainous area of central California. The reasons for the decline of the species are not certain, but it is believed that changes in the bird's natural habitat, inadvertent poisoning, and capricious shootings have played roles in reducing the population.

The California condor's great size and graceful soaring flight distinguish it among American birds. Hauer's sculptures capture the form and elegance of this unique bird, and the exhibit brings the California condor to people who might not otherwise have the opportunity to appreciate this magnificent creature.

Who's New at the Zoo

A pair of white rhinos and three young female zebras have recently been placed on exhibit at the Zoo.

The rhinos are making their home at the Elephant House in the area formerly occupied by Tarun, the Zoo's male Indian rhinoceros. Tarun has been loaned to the Bronx Zoo, where he has joined his son Patrick and three eligible young female Indian rhinos. If offspring are produced by our males and the Bronx Zoo's females, we can expect to have the species in Washington again. In the meantime, King's Dominion has loaned the Zoo a pair of square-lipped, two-horned African rhinos. The rhinos are not really white; the name comes from the Dutch word *wejd* (meaning wide) and refers to their broad upper lip. A strip of cartilage on the lower lip allows these rhinos to feed on grasses; other rhinos usually feed on shrubs or bushes.

Three young female zebras have been brought to Washington from the ever-expanding herd at the Zoo's Conservation and Research Center at Front Royal, Virginia. They are sharing the African water hole exhibit opposite the Panda House with the white-bearded wildebeests. Their stripes, which are now brown, will darken to black as they grow older.

FONZ NEWS

Call for Nominations

In accord with Article II of our By-Laws, the FONZ Board of Directors is hereby soliciting nominations from the membership.

Board Responsibilities

As members of a "working" Board, FONZ Directors "administer and manage the affairs" of the Friends of the National Zoo. The Board of Directors establishes the policies of the Corporation, approves budgets and expenditure of funds, and otherwise directs and supervises the activities of FONZ officers and employees. Much of the Board's work is accomplished through active committees which develop programs, budgets, and policies for various FONZ activities and which oversee their implementation. The principal committees include:

□ *The Finance Committee*, which institutes, develops, and supervises the fiscal operations of the Corporation.

□ *The Education Committee*, which participates in the development of FONZ-supported educational programs and supervises all

educational activities authorized by the Board.

□ *The Membership Committee*, which is responsible for recruiting new members to FONZ and for developing membership activities.

□ *The Publications Committee*, which supervises the publication and distribution of *ZooGoer* and *PawPrints*.

□ *The Visitor Services Committee*, which oversees the management and operation of the FONZ gift shop, food, parking, and other visitor service facilities at the Zoo.

□ *The Administration Committee*, which establishes and supervises administrative policies and procedures for FONZ employees.

All Board members serve on at least one of the above committees, and many attend two or more FONZ meetings each month. Board members serve on a voluntary basis without pay.

Criteria for Selection of Directors
The criteria by which potential

candidates are judged for nomination to the Board of Directors are the candidate's strong interest in supporting zoological education, research, and conservation in accordance with the purposes of our Corporation; experience or skills which are needed and would benefit directly the management and operations of FONZ; and willingness and time to serve on the Board of Directors and to participate fully in FONZ work and activities. Candidates must be dues-paying members of FONZ.

In 1981, the Nominating Committee feels it is important to strengthen Board expertise in the areas of food and merchandising management, fund-raising, and community leadership.

Nominating Procedures

Nominations may be made only by dues-paying family, couple, or individual memberships in good standing. (Senior citizen, contributing, and patron memberships of FONZ, and members who previously joined the Corporation as life members are entitled to all rights and privileges of dues-paying

family, couple, or individual memberships, as appropriate.) Employees of FONZ or the National Zoo are not eligible for membership on the FONZ Board of Directors. All nominations must be submitted on an official FONZ nominating form with a biographical sketch of the nominee attached. Nomination forms can be obtained at the FONZ office or will be mailed upon request.

For information and/or the required forms, call 673-4950.

The deadline for submitting nomination forms and accompanying biographical sketches is August 22, 1981.

Address submissions to:
M. Anthony Gould, Chairperson
FONZ Nominating Committee
National Zoological Park
Washington, D.C. 20008

Seal Gift Shop

FONZ's new Seal Gift Shop is slated to open early in July across from the Sea Lion Exhibit in Beaver Valley.

The Seal Gift Shop will feature a harp seal T-shirt designed especially for FONZ. Other new merchandise will highlight the bears, seals, and sea lions. Stuffed animals include a new Smokey Bear and both harp and grey seals. There will



David K. Krohne

FONZ's new Seal Gift Shop highlights the residents of Beaver Valley.

also be children's jewelry, seal mugs, a Smokey Bear Zookeeper badge, and a variety of educational items for children. The Seal Gift Shop will be open year-round.

Be sure to stop by this new FONZ gift shop when you visit the Zoo!

Photo Contest Winners

Congratulations to the winners of the Fourth Annual FONZ Photo Contest:

Adult—Color

First prize: Joseph Spies, Arlington, Virginia. *Second prize:* Robert Sulenski, Silver Spring, Maryland. *Third*

prize: John Mitchell, Silver Spring, Maryland.

Adult—Black and White

First prize: Joseph Spies, Arlington, Virginia. *Second prize:* Gloria Buckberg, Bethesda, Maryland. *Third prize:* Gloria Buckberg, Bethesda, Maryland.

Junior Division

First prize: Melissa Whitworth, Laurel, Maryland. *Second prize:* Matthew Bixler, McLean, Virginia. *Third prize:* Eric Franklin, Gaithersburg, Maryland.

Mr. Spies' prize-winning black and white photograph is featured on the back cover of this issue of *ZooGoer*.

Summer at the Zoo

Don't miss these super, free events this summer at the National Zoo:

Monkey House

Daily, around 11 a.m. to 12 noon.

Look for keeper activities such as handing out vitamins and hanging swings.

Daily, around 1:30 to 2:30 p.m.

Keepers are usually available to answer questions and discuss the animals.

Elephant House

Daily, around 9 a.m. and 5 to 6 p.m.

Watch keepers work with the elephants during management-training sessions.

Beaver Valley

(Along the Polar Bear Trail)

Tuesday, Wednesday, and Friday, 11 a.m.

Follow a keeper on a feeding round; visit different animals each day. Check the announcement boards near the otters and near the mechanical building (between the seals and sea lions) for the meeting place.

Sunday, 10:30 a.m. and 5 p.m.;

Wednesday and Thursday, 5 p.m.

Watch the keepers' management-training sessions with the seals or sea lions.

The activities listed above are dependent on keeper schedules and the weather. For each day's happenings, check the announcement boards in the Monkey House and in Beaver Valley.

ZooLab

Tuesday through Sunday, 12 noon to 3 p.m.

ZooLab is a place to learn more about the Zoo and its animals by looking, touching, and reading. There are bones, antlers, feathers, eggs, books, and study boxes. ZooLab is located in the Education Building. Free tickets are given out at the information desk in the lobby. Groups are permitted only by prior arrangement. One adult must accompany each three children.

BirdLab

Tuesday through Sunday, 12 noon to 3 p.m.

BirdLab is a touch-and-discover lab

similar to ZooLab, but the focus is on birds. It is located in the Bird House, and space is limited.

Films

Daily, 10:30 a.m. to 4:30 p.m..

every hour on the half hour.

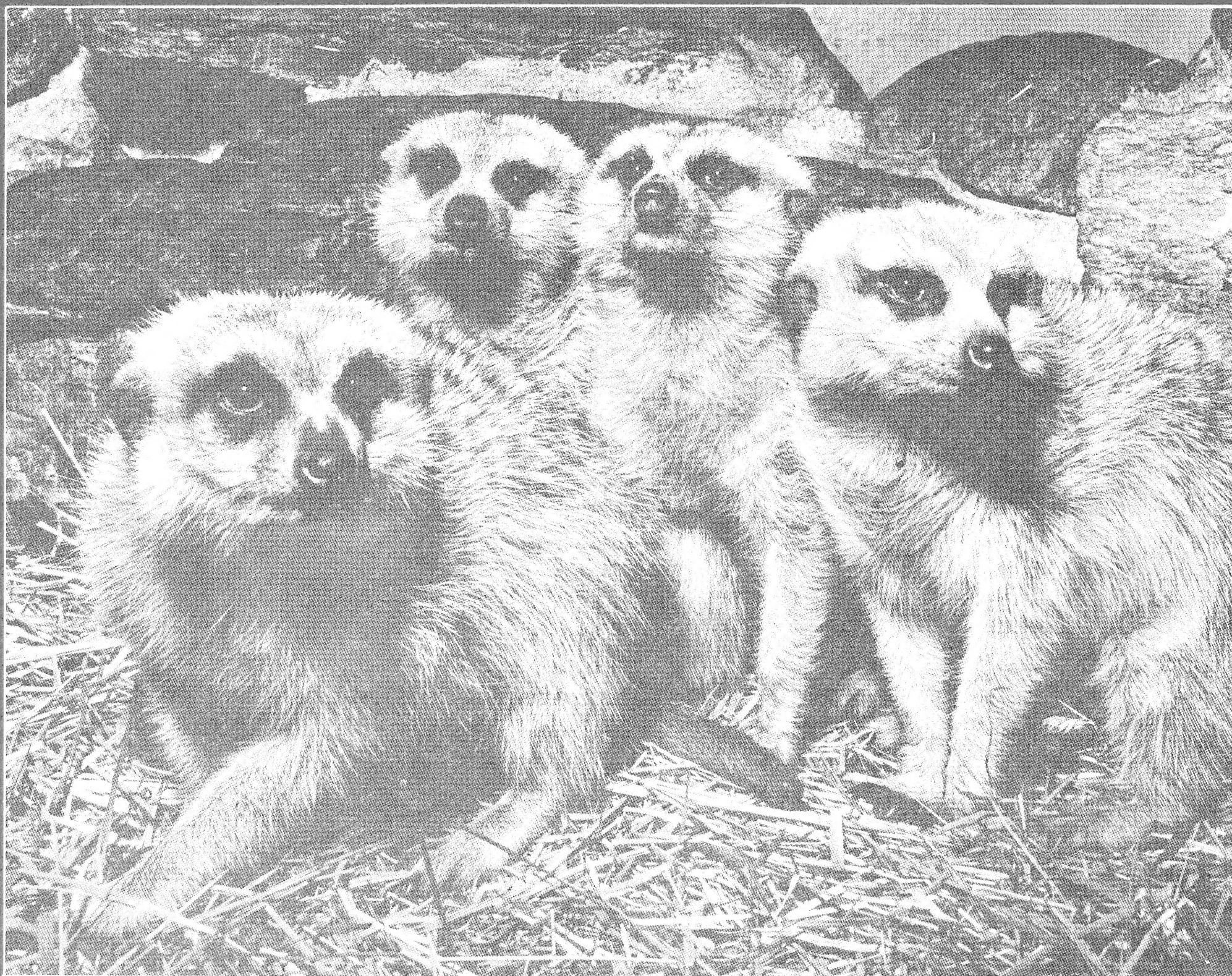
Zoo, a behind-the-scenes look at the animals and people of the National Zoo, and *The Last Chance*, which describes the activities of the Zoo's Conservation and Research Center at Front Royal, are shown alternately in the air-conditioned auditorium of the Education Building.

Puppet Shows

Tuesday through Sunday, July 7 through August 16, 10 a.m. to 3:30 p.m., every half hour.

Watch the puppet shows performed by FONZ Zoo Aides outside (weather permitting) near the Education Building.

For daily additions to the schedule of Zoo activities, check the information stations below Lion-Tiger Hill, outside the Giant Panda House, in the Education Building, and on the mobile information cart.



Joseph Spies of Arlington, Virginia, won first prize in the Adult black and white division of the FONZ Photo Contest with this striking portrait of meercats.

**Friends of the National Zoo
National Zoological Park
Washington, D.C. 20008**

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